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Digital Healthcare: The Impact of Artificial Intelligence

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Annotation: This article analyzes the process of digitalizing the healthcare sector, its advantages, current challenges, and development prospects. It also explores the integration of digital technologies into medical services, including electronic medical records, telemedicine, artificial intelligence, and IT capabilities. In addition, the article examines the legal issues faced by legal professionals in the process of introducing artificial intelligence into the healthcare system.

Key words: digitalization, healthcare, electronic medical record, telemedicine, artificial intelligence.

In recent years, the rapid development of digital technologies has significantly impacted all sectors, including healthcare. Especially in the post-pandemic era, the digitalization of healthcare has become not only a necessity but also an urgent requirement. This process is regarded as a key factor in improving the quality, efficiency, and accessibility of medical services. Today, digitalization is the result of technological advancement in the form of automation, computerization, and informatization [1]. Digital healthcare refers to the digital transformation of medical data, providing healthcare services through online platforms, and implementing artificial intelligence, telemedicine, and other digital solutions in the sector. As a result, patient data is stored in a centralized system, analyzed effectively, and enables the prompt adoption of medical decisions.

One of the main advantages of healthcare digitalization is:

- Centralization of medical data: Through electronic medical records and data systems, physicians can quickly access a patient's medical history.
- **Telemedicine**: Enables the provision of medical consultations and other healthcare services remotely. This is especially important for populations living in remote or underserved areas.
- **Artificial Intelligence (AI)**: Allows for the automation of diagnostic processes and the execution of analyses with high accuracy. At the same time, AI-powered systems can reduce human-related errors, increase the efficiency of healthcare services, and minimize waiting times, paperwork, and other bureaucratic barriers.

In many countries, integrated electronic healthcare systems have been established. These systems include medical information in the form of digital medical records and serve as a comprehensive source of patient data. For example, in **Sweden**, it is planned to establish a national electronic health system by 2025 based on the principle of **"One patient – one record"**, ensuring that the patient's medical data follows them from one specialist to another.

Finland is considered a global leader in medical information technology. The **KANTA** system has been developed there — a national health information system designed for patients, doctors, and medical institutions. In this country, the digital management of healthcare and social services is being implemented gradually. In **Singapore**, the national healthcare system follows the model of **"One Singaporean – one health card"**. In **South Korea**, a national health data exchange platform was established in 2005. In **Russia**, the concept for creating a **Unified State Health Information System** was developed. In **Belarus**, an electronic health information system has been created, integrating all medical data into a unified information space. This integrated approach includes electronic medical

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records, analytics-based decision-making systems, management tools, personal patient accounts, and modules for generating various statistical forms and reports. According to **Bloomberg**, in its ranking of national healthcare system efficiency (R6), **Hong Kong** holds first place, **Singapore** ranks second, while **Belarus** is in 49th place and **Russia** in 53rd [2]. In Uzbekistan, a number of reforms can also be observed in the process of digitalizing the healthcare system. The President of the Republic of Uzbekistan adopted a resolution titled "On additional measures for the accelerated digitalization of the healthcare system and the introduction of advanced digital technologies." According to this resolution, within the framework of the "Supporting Digital Health Reforms" project, a Digital Health Platform is being developed. All medical and pharmaceutical institutions across the country, including pharmacies, will be gradually and mandatorily connected to this platform. The development and implementation of healthcare-related information systems, resources, and other software products must be coordinated with the Unified Integrator as a mandatory procedure. One of the main directions in implementing artificial intelligence in the healthcare sector is its application in organ transplantation, regeneration of human organs based on stem cells, and the integration of AI in diagnostics and treatment. These innovations are becoming a core focus in improving public health services. In recent years, we have also observed attempts by several countries to establish legal frameworks regulating these emerging fields. Another important issue is the lack of legal regulation concerning the use of nanotechnology products, artificial intelligence, and cutting-edge information technologies in healthcare. This legal vacuum limits the capabilities of the healthcare system in ensuring effective and timely responses to existing medical challenges. It also constrains the potential to fully utilize advanced technologies for the benefit of public health.

The experiences gained during the **pandemic** have highlighted the necessity of conducting research on the **legal solutions for integrating digital technologies and artificial intelligence products** into the field of public health protection and legal guarantees. It is important to note that **modern scientific and technological progress** opens up new opportunities to improve the quality of human life and to create favorable conditions for protecting and restoring human health. Among these modern tools, **digital technologies and artificial intelligence** are increasingly being introduced in healthcare, particularly in **emergency medical services and surgical procedures**.

Moreover, it is essential to emphasize that the **economic, social, and legal regulation** of artificial intelligence has already become the subject of research by a number of **foreign scholars**. Specifically: the **general issues** of the creation and use of artificial intelligence have been examined by **A. Oskamp** and **A. R. Lodder** [3], the **criminal law aspects** have been analyzed by **M. N. Gasson** and **B. J. Koops** [4], issues of **intellectual property rights** in the context of AI are studied by **R. Yu** [5], the **prospects of recognizing AI as a legal subject** have been explored by **H. Saripan** [6], the **application of AI in jurisprudence** is discussed by **K. D. Ashley** [7] and the **issues of liability for harm** caused by AI, as well as **legal regulation of its involvement in legal relations**, have been analyzed by **D. V. Bakhteev** [8]. The problem, however, lies in the fact that **neither international nor national law, nor academic scholarship** has yet arrived at a **unified definition of "artificial intelligence."** This lack of clarity creates significant **challenges for the legal regulation** of this modern technology.

The concept of **artificial intelligence** was first defined in the early **1950s** and is associated with the name of **J. McCarthy**, a scientist who understood the technologies and science behind the creation of intelligent machines.

However, some experts attempt to highlight the **negative aspects** of utilizing artificial intelligence. In particular, **A.V. Gusev** and **S.L. Dobridnyuk** point out that as AI technologies are being entrusted with increasingly **critical tasks**, the consequences of potential **errors** may be **unexpected and severe**, especially in **medicine**, where the **risk to human life and health** is high [9].

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Nevertheless, it must be acknowledged that in an era of continuous **scientific and technological progress**, artificial intelligence is becoming **increasingly significant** in our lives. Therefore, it is essential to continue exploring this technology from a legal standpoint, especially in regard to the following issues:

1. First, it is necessary to **determine the future role and position** of artificial intelligence in human society;
2. Second, to **set permissible boundaries** for its use to prevent harm to individuals or groups;
3. Third, based on an understanding of the **nature and features** of artificial intelligence, it is crucial to **introduce amendments and additions to legislation** that would best respond to the challenges AI may pose in the future.

Price and **W. Nicholson** emphasize that artificial intelligence has **great potential to transform healthcare** and that rapid action is being taken in this direction. Although elements of AI are already being integrated into the healthcare sector, the development and implementation of **AI algorithms** that we still do not fully understand poses **urgent legal questions** that must be addressed sooner rather than later [10]. When implementing artificial intelligence in the healthcare sector, the **first priority** is to address the **responsibility** of AI-based software mechanisms, the **confidentiality** of the patient's personal life, medical history, and the **legal protection** of such information. A.I. Bogomolov also supports this view, noting that there is a risk of loss of medical and personal data of patients, and the issue of liability in such cases remains **unclear**, which is a worrying situation [11].

V.A. Vaipan states that robots and other AI-based products **can be objects** of legal relations but are **not suitable to be recognized as independent legal subjects** [12]. It is important to note that these issues have been the subject of intense debate for several years. While we support this position, we believe that during the early stages of these technological products, it is not appropriate to recognize them as separate legal subjects until their effectiveness and safety have been thoroughly tested.

It is also worth mentioning that the activities of certain regions and countries in this field started several years ago. For example, in **February 2017**, the **European Parliament** adopted a resolution considering the legal possibilities of granting **"electronic personhood"** status to complex robots. This legal document proposes the development of an effective insurance system to protect the interests of all parties involved (robot owners, victims, and the state) [13]. In the legislation of the European Union, the following rules for regulating artificial intelligence have been established:

1. A robot based on artificial intelligence **cannot harm a human being** through its actions or inactions;
2. The robot **must obey human orders**;
3. The robot **must protect its own safety**, provided that such actions do not contradict the law.

The document mentioned and the issues it raises have also faced criticism, primarily regarding the **inappropriateness and groundlessness** of granting robots the status of a legal subject. Critics argue that it is possible to establish liability for the actions or inactions of robots **without** recognizing them as legal persons [14].

Of course, when it comes to human health, the principle of "**do no harm**" holds paramount importance. The introduction of new technologies in medicine requires the development of a strict **regulatory and legal framework** based on solid evidence. It should be acknowledged that in the 21st century, artificial intelligence technology will have the greatest transformative impact on our lives and the technological landscape used in healthcare. Therefore, it is essential first to clearly define the **medical-legal spheres** in which artificial intelligence will be implemented. The rapid development of

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AI research and the resources provided by governments and industries offer significant opportunities for its widespread use in healthcare, cost reduction, and improvement of service quality [15]. At the same time, questions remain about **when and how** this development should occur in medicine. Before adopting AI results in healthcare, issues such as ensuring fairness and transparency in data collection and fair distribution of benefits need to be addressed. We agree with this view and emphasize that all technologies used in healthcare must first be analyzed from the perspectives of **effectiveness** and **safety**.

Based on the above, the following conclusions can be made:

1. The number of startups in the healthcare sector is increasing year by year. Their development affects human life and helps to improve its quality. Accordingly, in the near future, the concept of the **right to health** should be expanded to include the new right to receive medical assistance with the help of artificial intelligence.
2. It is necessary not only at the national but also at the international level to define the **legal responsibility** of the creators of AI products and to develop clear procedures for conducting clinical trials of these products.

References:

1. Уразалиева И. и др. ДУНЁДА СОҒЛИҚНИ САҚЛАШ ТИЗИМИНИ РАКАМЛАШТИРИШ ВА УНИ РИВОЖЛАНТИРИШНИНГ АСОСИЙ ЙУНАЛИШЛАРИ. – 2022.
2. eHealth in the WHO European //http://www.euro.who/int/__data/assets/pdf_file/0
3. Oskamp A., Lodder A. R. Introduction: Law, Information Technology, and Artificial Intelligence //Information Technology and Lawyers. – Springer, Dordrecht, 2006. – С. 1-22.
4. Gasson M. N., Koops B. J. Attacking human implants: a new generation of cybercrime //Law, Innovation and Technology. – 2013. – Т. 5. – №. 2. – С. 248-277.
5. Yu R. The Machine Author: What Level of Copyright Protection is Appropriate for Fully Independent Computer Generated Works //U. Pa. L. Rev. – 2016. – Т. 165. – С. 1245.
6. Saripan H., Putera N. S. F. M. S. Are robots human? A review of the legal personality model //World Applied Sciences Journal. – 2016. – Т. 34. – №. 6. – С. 824-831.
7. Ashley K. D. Artificial intelligence and legal analytics: new tools for law practice in the digital age. – Cambridge University Press, 2017. – С. 41-62.
8. Бахтеев Д. В. Этико-правовые модели использования систем искусственного интеллекта //Редакционная коллегия. – 2019. – С. 16.
9. Гусев А. В., Добриднюк С. Л. Искусственный интеллект в медицине и здравоохранении //Информационное общество. – 2017. – №. 4-5. – С. 78-93.
10. Price I. I., Nicholson W. Artificial intelligence in health care: applications and legal issues. – 2017. – P. 10-13.
11. Богомолов А. И., Невежин В. П., Жданов Г. А. Искусственный интеллект и экспертные системы в мобильной медицине //Хроноэкономика. – 2018. – №. 3 (11).
12. Вайпан В. А. Основы правового регулирования цифровой экономики.// Право и экономика. 2017. № 11 – С. 9
13. European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)) // http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-// EP//NONSGML+TA+P8-TA-2017–0051+0+DOC+PDF+V0//EN

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http://journals.academiczone.net/index.php/jiphr

14. Policy Department C: Citizens' Rights and Constitutional Affairs. European Civil Law Rules in Robotics. STUDY for the JURI Committee. C. 14 // http://www.europarl.europa.eu/RegData/etudes/STUD/2016/571379/IPOL_STU(2016)571379_EN.pdf
15. Reddy S., Fox J., Purohit M. P. Artificial intelligence-enabled healthcare delivery //Journal of the Royal Society of Medicine. – 2019. – Т. 112. – №. 1. – С. 22-28.